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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,731	08/31/2001	Susumu Takahashi	1186.1019	8415

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
RAO, SHRINIVAS H	
ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 05/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/942,731	TAKAHASHI ET AL.	
	Examiner	Art Unit	
	Steven H. Rao	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28,30-43,45-54 and 56-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-28,30-43,45-54 and 56-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETIALED ACTION

Receipt is acknowledged of paper submitted under 37 CFR 1.114 and 35 U.S. C. 119 (a) –(d), claiming priority from U.S. Serial No. 09/942,731 filed on August 31, 2001 which itself claims priority from Japanese Patent Application Nos. 11-297045(10/19/1999), 2000-226780 (07/29/2000), 2000-264438 (08/31/2000), which papers have been placed of record in the file.

Continued Prosecution Application

The request filed on February 22, 2005 for a request for Continued Examination Application (RCE) under 37 CFR 1.114(d) based on parent Application No. 09/942,731is acceptable and a RCE has been established. An action on the RCE follows.

Preliminary Amendment Status

Acknowledged is made of preliminary amendment filed on February 22, 2005 and the Supplemental amendment faxed on April 26, 2005 has been entered on April 27, 2005.

It is noted that pages 2 to 12 of the Supplemental amendment faxed on April 26, 2005 has been entered on April 27, 2005 wrongly identifies the serial No. as 09/994,789 whereas cover sheet correctly states the Serial No. as 09/942,731.

Therefore claims 1,9,20,30,41,52 and 61 as amended by the amendment and claims 2-8,10-19,21-28,31-40,42-51, 53-54 and 56-60 as recited in the amendment are currently pending in the Application.

Claims 29,44 and 55 have been cancelled.

Information Disclosure Statement

No further IDS, after the one filed on April 22, 2004 (entered on August / 20 /2004) have been filed to date in the Instant Application.

Acknowledgment is made of receipt of Applicant's Information Disclosure Statement (PTO-1449) filed on April 22, 2004.

The references on PTO 1499 submitted on 04/2/2004 are acknowledged.

Applicants' have only submitted an English translation of the Office Action from the Taiwanese Patent Office, but have not submitted translations of the actual references itself and the actual Taiwanese documents themselves.

The PT0-1449 will be initialed upon receipt of the English translation/abstract and the actual references itself.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-28,30-43,45-54 and 56-60 are rejected under 35 U.S.C. 103(a) as being obvious over Tanabe et al. .(U.S. Patent No. 6,1 18, 586 herein after Tanabe) previously applied and further in view of Japanese Utility Model No.

258847 (LGZ Landis, herein after Landis) (for Applicants' convineince U.S Patent Pub. No. 2003/0151784, wherein English translation of relevant protions of Landis is enclosed e.g. para 0007).

With respect to claims 1, 9, 20 and 52 Tanabe describes an optical film comprising an array of diffraction grating cells arranged in a matrix, (col.2 lines 60-65, etc.) each cell comprising blazed type or binary type curved gratings. (Tanabe figures 2/3, etc. and Col. 10 lines 63 to 67).

The presently newly added limitation of wherein each side of each diffraction grating cell measures between about 5um to about 300 um is not specifically describes by Tanabe .

However Landis (Japanese Utility patent NO. 258847)and (2003/151784, para 0007) describes a diffraction grating pattern of 0 to 300 um to provide micro-characters having desired properties including anti-counterfeiting means used in notes credit cards etc.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Landis (Japanese Patent NO. 258847's) a diffraction grating pattern of 0 to 300 um (i.e wherein each side of each diffraction grating cell measures between about 5um to about 300 um) in Tanabe's device. The motivation to make the above combination is to provide micro-characters having desired properties including anti-counterfeiting means used in notes credit cards etc. ("847 patent)

With respect to claims 2, 10, 21,42,53 Tanabe describes the optical film according to claim 1 , wherein said gratings of different grating cells contain different profiles. (col. 5 lines 34-48 and Col. 10 lines 63 to 67).

With respect to claims 3, 11 ,22, 43,54 Tanabe describes the optical film according to claim 1 , wherein said gratings of different grating cells contain the same profile and arranged in parallel with each other. (col. 5 line 30-34). (LCD layer and display (cl.9) col.2 lines 56-62 and Col. 10 lines 63 to 67).

With respect to claims 4,12, 23,44 Tanabe describes the optical film according to one of claims 1 to 3, wherein said gratings of each grating cells include at least two grating pitches.t (col. 7 lines 17-30 and Col. 10 lines 63 to 67).

With respect to claims 5,13 24, 37,45,56 Tanabe describes the optical film according to one of claims lto 3, wherein an angle of a slope of the gratings of different rating cells is uniform. (Tanabe figure 2 and Col. 10 lines 63 to 67).

With respect to claims 6, 14, 38,46 Tanabe describes the optical film according to one of claims 1 to 3, wherein a surface of said diffraction grating cells of each of the grating cells is provided with a reflection layer. (Figure 1 ,9 and Col. 10 lines 63 to 67).

With respect to claims 7,15,25, 28', 39,47 Tanabe describes the optical film according to one of claims I to 3, wherein each of the gratings of each of the grating cells has a gentle slope and a steep slope in a cross section and a surface of the gentle slope is provided with a reflection layer. (figures 2 and 3, and see above rejections and Col. 10 lines 63 to 67).

With respect to claim 8, 16, 26, 40 ,48 and 57 Tanabe describes the optical film according to one of claims 1 to 3, wherein fine rectangular or elliptic projections or recesses are formed on a surface of said diffraction grating cells with a short axis thereof agreeing with a direction of juxtaposition of said gratings. (Tanabe col. 16 lines 23-35, and Tenantable figs. 2,3 and Col. 10 lines 63 to 67).

With respect to claimsl7, 49 ,58 Tanabe describes the display device according to one of claims 9 to 1 1, wherein said liquid crystal display layer comprises an array of pixels arranged in a matrix', and said diffraction grating cells and said array of pixels show a one-to-one correspondence. (Tanabe example 8 , col.16 lines 23-35 and Col. 10 lines 63 to 67).

With respect to claim 18 Tanabe describes the display device according to one of claims 9 to 1 1 , wherein said liquid crystal display layer comprises array of pixels . (Tanabe col. 6 line 62 to col. 7 line 6 and Col. 10 lines 63 to 67).

With respect to claims 27,and 59 Tanabe describes LCD layer having an array of pixels arranged in a matrix', and a pitch of arrangement of said array of diffraction grating cells is integer times of a pitch of arrangement of said pixels or vice versa. (Tanabe col. 16 line 36 to 44 and Col. 10 lines 63 to 67).

With respect to claim 19, 51 Tanabe describes the display device according to one of claims 9 to 1 1 , wherein the grating has a gentle slope and a steep slope in a cross section and the gentle slope is directed to above a display screen of said display device. (Tanabe figures 2 to 6 etc. and Col. 10 lines 63 to 67) .

With respect to claim 30 Tanabe describes an optical film comprising: an array of diffraction grating cells arranged in a matrix each of the grating cells comprising curved gratings, wherein said gratings include at least two grating pitches and wherein each side of each diffraction grating cell measures between about 5um to about 300 um (rejected for reason set out under claims 1 and 2 above).

With respect to claim 31 Tanabe describes the optical film according to claim 30, wherein said diffraction grating cells are blazed type diffraction grating cells. (rejected for reason set out under claim 1 above).

With respect to claim 32 Tanabe describes the optical film according to claim 30 wherein said diffraction grating cells are binary type diffraction grating cells. (rejected for reason set out under claim 1 above).

With respect to claim 33 Tanabe describes the optical film according to one of claims 30 to 32, wherein, a pitch by of said array of the gratings is changed in a cell so as to change either or the tangent of a y stepwise by a constant value, wherein is an angle in the vertical direction at which incident light enters the diffraction grating cells array is an angle in the vertical direction at which diffracted light emits from the diffraction grating cells, and -, (= dy x (sin 8 + sin ayl) is a wavelength of diffracted light. (col. 10 lines 17 to 29 and Col. 10 lines 63 to 67).

With respect to claim 34 Tanabe describes the optical film according to one of claims 30 to 32, wherein a pitch of said array of the gratings in a diffraction

grating cell is constant and a pitch of said array of the gratings is changed from cell to cell so as to change either a y or the tangent of a y stepwise by a constant value, wherein H is an angle in the vertical direction at which incident light: enters the diffraction grating cells, ay is an angle in the vedical direction at which diffracted light emits from the diffraction grating cells, and 2,4= dy xlsin 8 + sin ayl) is a wavelength of diffracted.light. (col. 10 lines 29 to 39 and Col. 10 lines 63 to 67).

With respect to claim 35 Tanabe describes the optical film according to one of claims 30 to 32, wherein a pitch of said array of the gratings in a diffraction grating cell is constant and there are at least two grating pitches of said array of the gratings among the diffraction grating cells, a difference of the pitches being not greater than a value corresponding to the half-width of light diffracted by the cell or a value corresponding to the width of light diffracted by the cell. (col. 9 lines 63-67 and Col. 10 lines 63 to 67).

With respect to claim 36 Tanabe describes the optical film according to one of claims 30 to 32, wherein said gratings of different grating cells contain the same profile and arranged in parallel with each other. (col. 10 lines 29 to 39 and Col. 10 lines 63 to 67).

With respect to claim 41 Tanabe describes a display device comprising :
a liquid crystal display layer which forms an image to be displayed', and a light reflecting optical film which is arranged on a rear surface of the liquid crystal display layer (figures 4,5 etc.) and comprises an array of diffraction grating cells

arranged in a matrix, each cell comprising curved gratings, wherein said gratings of each of the grating cells include at least two grating pitches. (col. 10 lines 29 to 39 and Col. 10 lines 63 to 67) and wherein each side of each diffraction grating cell measures between about 5um to about 300 um (rejected for reason set out under claims 1 and 20above).

With respect to claim 50 describes the display device according to one of claims 41 to 43, wherein said liquid crystal display layer comprises an array of pixels arranged in a matrix', and a pitch of arrangement of said diffraction grating cells is integer times of a pitch of arrangement of said pixels or vice versa. (col. 10 lines 29 to 39 and Col. 10 lines 63 to 67) of cross section and the gentle slope is directed to above a display screen of said display.

With respect to claim 60 Tanabe describes the display device according to one claims 52 to 54, wherein the grating has a gentle slop and a steep slope in a device. (Tanabe figure 6 , col. 6 last line to col. 7 lines 1-2).

With respect to claim 61, Tanabe describes a display device including a liquid crystal display layer (Tanabe col.2 line 54), a plurality of drive electrodes in proximity to the liquid crystal display layer (assuming arguendo no new matter exists land a light reflecting optical film including a plurality of diffraction grating cells arranged in a matrix, each of the diffraction grating cells including at least one of a blazed type and a binary type grating, wherein the drive electrodes from the light reflecting optical film and wherein each of the drive electrodes includes one of the diffraction grating cells.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (571) 272-1718. The examiner can normally be reached on 8.00 to 5.00.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven H. Rao
Patent Examiner
April 30, 2005.